## WHAT IS CLAIMED IS:

## 1. A glycopeptide of formula I:

**(I)** 

wherein:

R<sup>+</sup> is an amino containing saccharide group substituted on the amine with a substituent that comprises two or more (e.g. 2, 3, 4, 5, or 6) hydroxy (OH) groups;

 $R^2 \text{ is hydrogen or a saccharide group optionally substituted with} \\ -R^a-Y-R^b-(Z)_x, R^f, -C(O)R^f, \text{ or } -C(O)-R^a-Y-R^b-(Z)_x; \\ R^3 \text{ is } -OR^c, -NR^cR^c, -O-R^a-Y-R^b-(Z)_x, -NR^c-R^a-Y-R^b-(Z)_x, -NR^cR^e, \text{ or } -O-R^e; \\ \end{pmatrix}$ 

10  $R^4$  is selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkynyl, substituted alkynyl,  $-R^a-Y-R^b-(Z)_x$ ,  $-C(O)R^d$  and

a saccharide group optionally substituted with  $-R^a-Y-R^b-(Z)_x$ ,  $R^f$ ,  $-C(O)R^f$ , or  $-C(O)-R^a-Y-R^b-(Z)_x$ ;

 $R^{s}$  is selected from the group consisting of hydrogen, halo,  $-CH(R^{c})-NR^{c}R^{c}$ ,  $-CH(R^{c})-NR^{c}R^{e}$ ,  $-CH(R^{c})-NR^{c}R^{e}$ ,  $-CH(R^{c})-NR^{c}R^{e}$ ,  $-CH(R^{c})-NR^{c}-R^{a}-C(=O)-R^{x}$ ;

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 $R^{6}$  is selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkynyl,  $-R^{a}-Y-R^{b}-(Z)_{x}$ ,  $-C(O)R^{d}$  and a saccharide group optionally substituted with  $-NR^{c}-R^{a}-Y-R^{b}-(Z)_{x}$ , or  $R^{5}$  and  $R^{6}$  can be joined, together with the atoms to which they are attached, form a heterocyclic ring optionally substituted with  $NR^{c}-R^{a}-Y-R^{b}-(Z)_{x}$ ;

 $R^7$  is selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkynyl,  $-R^a-Y-R^b-(Z)_x$ , and  $-C(O)R^d$ ;

R<sup>8</sup> is selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkyl, substituted cycloalkenyl, aryl, heteroaryl and heterocyclic;

R<sup>9</sup> is selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkyl, substituted cycloalkenyl, aryl, heteroaryl and heterocyclic;

R<sup>10</sup> is selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkyl, substituted cycloalkenyl, aryl, heteroaryl and heterocyclic; or R<sup>8</sup> and R<sup>10</sup> are joined to form -Ar<sup>1</sup>-O-Ar<sup>2</sup>-, where Ar<sup>1</sup> and Ar<sup>2</sup> are independently arylene or heteroarylene;

R<sup>11</sup> is selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkyl, substituted cycloalkenyl, aryl, heteroaryl and heterocyclic, or

R<sup>16</sup> and R<sup>11</sup> are joined, together with the carbon and nitrogen atoms to which they are attached, to form a heterocyclic ring;

 $R^{12}$  is selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkyl, substituted cycloalkenyl, aryl, heteroaryl, heterocyclic,  $-C(O)R^d$ ,  $-C(NH)R^d$ ,  $-C(O)NR^cR^c$ ,  $-C(O)OR^d$ ,  $-C(NH)NR^cR^c$  and  $-R^a-Y-R^b-(Z)_x$ , or  $R^{11}$  and  $R^{12}$  are joined, together with the nitrogen atom to which they are attached, to form a heterocyclic ring;

 $R^{13}$  is selected from the group consisting of hydrogen or  $-OR^{14}$ ;

R<sup>14</sup> is selected from hydrogen, -C(O)R<sup>d</sup> and a saccharide group;

each R<sup>a</sup> is independently selected from the group consisting of alkylene, substituted alkylene, alkenylene, substituted alkenylene, alkynylene and substituted alkynylene;

each R<sup>b</sup> is independently selected from the group consisting of a covalent bond, alkylene, substituted alkylene, alkenylene, substituted alkynylene, alkynylene and substituted alkynylene, provided R<sup>b</sup> is not a covalent bond when Z is hydrogen;

each R<sup>c</sup> is independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl, substituted cycloalkenyl, aryl, heteroaryl, heterocyclic and -C(O)R<sup>d</sup>;

each R<sup>d</sup> is independently selected from the group consisting of alkyl, substituted alkyl, alkenyl, substituted alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl, substituted cycloalkenyl, aryl, heteroaryl and heterocyclic;

R<sup>e</sup> is a saccharide group;

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each R<sup>f</sup> is independently alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl, substituted cycloalkenyl, aryl, heteroaryl, or heterocyclic;

 $R^x$  is a nitrogen-linked amino saccharide or a nitrogen-linked heterocycle;  $X^1$ ,  $X^2$  and  $X^3$  are independently selected from hydrogen or chloro; each Y is independently selected from the group consisting of oxygen, sulfur,

$$S - S -, -NR^c -, -S(O) -, -SO_2 -, -NR^c C(O) -, -OSO_2 \ , -OC(O) -, -NR^c SO_2 -, -OC(O) -, -NR^c SO_2 -, -OC(O) -, -NR^c SO_2 -, -OC(O) -, -$$

 $5 \qquad -C(O)NR^c-, -C(O)O^-, -SO_2NR^c-, -SO_2O^-, -P(O)(OR^c)O^-, -P(O)(OR^c)NR^c-, \\$ 

 $-OP(O)(OR^c)O^-, -OP(O)(OR^c)NR^c-, -OC(O)O^-, -NR^cC(O)O^-, -NR^cC(O)NR^c-, -OC(O)O^-, -NR^cC(O)NR^c-, -OC(O)O^-, -OC($ 

 $-OC(O)NR^{c}$ -, -C(=O)-, and  $-NR^{c}SO_{2}NR^{c}$ -;

each Z is independently selected from hydrogen, aryl, cycloalkyl, cycloalkenyl, heteroaryl and heterocyclic;

*n* is 0, 1 or 2; and

*x* is 1 or 2;

or a pharmaceutically acceptable salt, stereoisomer, or prodrug thereof; provided the group  $R^3$  does not comprises more than one carboxy group; and provided the group  $R^3$  is not a substituent that comprises one or more saccharide

groups and a carboxy (COOH) group; and

provided the compound of formula I is not a compound of formula II:

HO NH OH OH OH OH OH OH OH OH OH 
$$R^{3}$$
 OH  $R^{3}$  OH

- a) wherein R<sup>3</sup> is OH; R<sup>5</sup> is hydrogen; R<sup>19</sup> is -CH<sub>2</sub>[CH(OH)]<sub>4</sub>COOH; and R<sup>20</sup> is -CH<sub>2</sub>CH<sub>2</sub>-NH-(CH<sub>2</sub>)<sub>9</sub>CH<sub>3</sub>; or
- b) wherein R<sup>3</sup> is OH; R<sup>5</sup> is hydrogen; R<sup>19</sup> is hydrogen; and R<sup>20</sup> is -CH<sub>2</sub>CH<sub>2</sub>-N(C(O)-3,4,5-trihydroxycyclohex-1-en-1-yl)-(CH<sub>2</sub>)<sub>9</sub>CH<sub>3</sub> (R,S,R isomer).
- 2. The glycopeptide of claim 1 wherein  $R^1$  is an amino containing saccharide group substituted on the amine with a group comprising two or more hydroxy groups that is selected from  $-R^a-Y-R^b-(Z)_x$ ,  $R^f$ ,  $-C(O)R^f$ , and  $-C(O)-R^a-Y-R^b-(Z)$ .

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3. The glycopeptide of claim 1 wherein  $R^1$  is a saccharide group of the formula:

wherein  $R^{15}$  comprises two or more hydroxy groups and is selected from  $-R^a-Y-R^b-(Z)_x$ ,  $R^f$ ,  $-C(O)R^f$ , and  $-C(O)-R^a-Y-R^b-(Z)_x$ ; and  $R^{16}$  is hydrogen or methyl.

- 4. The glycopeptide of claim 3 wherein R<sup>15</sup> is substituted alkyl, substituted alkenyl, substituted alkynyl, substituted cycloalkyl, substituted cycloalkenyl, aryl, heteroaryl, heterocyclic, substituted alkyl-C(O)-, substituted alkenyl-C(O)-, substituted alkynyl-C(O)-, substituted cycloalkyl-C(O)-, substituted cycloalkenyl-C(O)-, aryl-C(O)-, heteroaryl-C(O)-, or heterocyclic-C(O)-; wherein R<sup>15</sup> comprises two or more hydroxy groups.
- The glycopeptide of claim 3 wherein R<sup>15</sup> is a group of formula -CH2-CH(OH)CH(OH)CH<sub>2</sub>-Y-R<sup>b</sup>-(Z)<sub>x</sub>; wherein Y, R<sup>b</sup>, Z, and x have the values defined in claim 1.
- 6. The glycopeptide of claim 3 wherein R<sup>15</sup> is a group of formula-CH2-CH(OH)CH(OH)CH<sub>2</sub>-R<sup>17</sup> wherein R<sup>17</sup> is hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkyl, substituted cycloalkyl, aryl, heteroaryl, or heterocyclic.

## 7. The glycopeptide of claim 1 which is a compound of formula II:

$$R^{19}$$
 $N-R^{20}$ 
 $R^{19}$ 
 $N-R^{20}$ 
 $R^{19}$ 
 $R^{19}$ 

wherein:

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R<sup>19</sup> is hydrogen;

 $R^{20}$  is  $-R^a - Y - R^b - (Z)_x$ ,  $R^f$ ,  $-C(O)R^f$ , or  $-C(O) - R^a - Y - R^b - (Z)_x$ ; and  $R^a$ , Y,  $R^b$ , Z, x,  $R^f$ ,  $R^3$ , and  $R^5$  have any of the values defined in claim 1; or a pharmaceutically acceptable salt, stereoisomer, or prodrug thereof.

- 8. The glycopeptide of claim 7 wherein R<sup>3</sup> is OH.
- 9. The glycopeptide of claim 7 wherein R<sup>5</sup> is hydrogen.

- 10. The glycopeptide of claim 27 wherein  $R^{19}$  is hydrogen; and  $R^{20}$  is selected from  $-R^a-Y-R^b$  (Z)<sub>x</sub>,  $R^f$ ,  $-C(O)R^f$ , and  $-C(O)-R^a-Y-R^b-(Z)_x$ .
- The glycopeptide of claim 10 wherein R<sup>20</sup> is substituted alkyl, substituted alkynyl, substituted cycloalkyl, substituted cycloalkenyl, aryl,
  heteroaryl, heterocyclic, substituted alkyl-C(O)-, substituted alkenyl-C(O)-, substituted alkynyl-C(O)-, substituted cycloalkyl-C(O)-, substituted cycloalkenyl-C(O)-, aryl-C(O)-, heteroaryl-C(O)-, or heterocyclic-C(O)-; wherein R<sup>15</sup> comprises two or more hydroxy groups.
- 12. The glycopeptide of claim 10 wherein R<sup>20</sup> is substituted alkyl, substituted alkenyl, substituted alkyl-C(O)-, substituted alkenyl-C(O)-, substituted alkynyl-C(O)-; wherein R<sup>15</sup> comprises two or more hydroxy groups.
  - 13. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and a therapeutically effective amount of a compound of claim 1.
  - 14. The pharmaceutical composition of claim 13, which comprises a cyclodextrin.
- 15. A method of treating a mammal having a bacterial disease, the method comprising administering to the mammal a therapeutically effective amount of a glycopeptide of claim 1.
  - 16. A method of treating a mammal having a bacterial disease, the method comprising administering to the mammal a therapeutically effective amount of a glycopeptide of claim 7.

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17. A method of treating a mammal having a bacterial disease, the method comprising administering to the mammal a therapeutically effective amount of a pharmaceutical composition of claim 13.